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## Assessing feasibility of limestone aquifer for managed aquifer recharge

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The scenario of groundwater is very precarious in Raipur due to industrialisation, urbanisation as well as limited water resources. Climatic conditions and land use are major factors for ground water conditions (decline in water level and changing in water quality) of Chandi limestone aquifer. The only source of water in Chandi limestone aquifer is rainwater and the surface water is so polluted that it is only utilised only for livestock and irrigation. Raipur area is increasing day-by-day hence, imparting the problem for ground water in both quality as well quantity. Therefore, managed aquifer recharge (MAR) is necessary for managing groundwater resources of this economical hub of Chattisgarh state for its sustainable development. In order to make MAR a successful method in limestone of Raipur area, hydrogeological and hydro-geophysical knowledge has been gained along the Chokra Nala of Raipur to characterize the karstified Chandi limestone aquifer in order to determine its groundwater rechargeability. With geological point of view the limestone is compact, massive and stromatolitic. Karst features are also observed in the limestone out crop as well as from the drill samples. Primary porosity is absent in the limestone but due to joints and karstification secondary porosity is observed. The results demonstrate that solution channel has modified the hydraulic properties of the aquifer by altering the fractures, bedding planes and interstices. With the help of geophysical results it was observed that subsurface mafic dykes have intruded the limestone and it will have a bearing on the groundwater system. Due to the presence of various features suitable for increasing infiltration to the aquifer, it was observed that the area towards east of Raipur (Telibanda area) is favorable area for effective MAR.

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